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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/750,780

01/02/2004

Dong-Seok Ham

2522-048

1506

20575

7590

01/30/2006

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EXAMINER

LAWRENCE JR, FRANK M

ART UNIT

PAPER NUMBER

1724

DATE MAILED: 01/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/750,780

Applicant(s)

HAM ET AL.

Examiner

Frank M. Lawrence

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1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-24 is/are allowed.
- 6) ☒ Claim(s) 1-3,5,10-13,25,26,31-33,35 and 36 is/are rejected.
- 7) ☒ Claim(s) 4,6-9,14,15,27-30,34 and 37-39 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date (2).
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Muraoka (5,772,738).

3. Muraoka '738 teaches a multifunctional air filter comprising a first fabric filter (4) including activated carbon, and at least one second fabric filter including activated carbon having potassium permanganate attached (col. 2, lines 38-57, col. 5, lines 22-62, col. 6, lines 28-34).

The filter is used for removing contaminants such as ozone and nitrogen dioxide from an air stream, and an embodiment having two second fabric filters will anticipate the filter of instant claim 1 with the layers inherently capable of adsorbing ozone and nitrogen oxides from a gas.

4. Claims 1-3, 25, 26, 31-33 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Stemmer et al. (6,156,089).

5. Stemmer et al. '089 teach a two-stage air filter comprising three layers (422, 424, 250) that can include a non-woven fabric impregnated with activated carbon and having a chemical agent such as potassium permanganate attached (see figure 7, col. 4, lines 15-46, col. 6, line 41 to col. 7, line 10). The filter is enclosed in a tray having upper and lower rails that are connected to form a frame, wherein the filter layers are sandwiched between mesh layers (208, 210) and arranged within the lower rail (see figures 2, 7, col. 3, lines 1-14). The three layer embodiment

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anticipates the instantly claimed filter because the layers are inherently capable of adsorbing ozone and nitrogen oxides from a gas stream.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5, 10-13 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stemmer et al. '089.

8. Stemmer et al. '089 disclose all of the limitations of the claims except that the impregnating agent is present in a specific weight percent range, that the layers have specified relative thicknesses, and that the impregnating agent is applied by immersing. Absent a proper showing of criticality or unexpected results, the amount of impregnate used and the thickness of the filter layers are considered to be parameters that would have been routinely optimized by one having ordinary skill in the art at the time of the invention in order to achieve a desired level of air purification based on the level of contamination and flow conditions. Also, it would have been obvious to one skilled in the art to use an impregnating technique such as immersion, spraying, or other well known coating technique based on cost and availability of the impregnating methods.

Allowable Subject Matter

9. Claims 16-24 are allowed.

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10. The following is an examiner's statement of reasons for allowance: The prior art of record fails to disclose or suggest a chemical filter medium including a first layer including a filtering base neutral material and a catalyst for reducing ozone impregnated in the material, a second layer formed on the first layer and including a filtering base oxide material and a catalyst for decomposing and removing nitrogen oxide impregnated in the oxide material, and a third layer formed on the second layer and including a filtering base neutral material and a catalyst for reducing ozone impregnated in the filtering base neutral material.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

11. Claims 4, 6-9, 14, 15, 27-30, 34 and 37-39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional references listed on the attached PTO-892 form disclose multi-layer gas filters.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank M. Lawrence whose telephone number is 571-272-1161. The examiner can normally be reached on Mon-Thurs 7:30-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Frank M. Lawrence
Primary Examiner
Art Unit 1724

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Frank Lawrence
1-9-06